



## NS3

Electronic starter for low and medium power cage motors

The soft electronic starter NOVADEM S3 (NS3) is designed to control all aspects of starting, stopping and protection of 3 phase squirrel cage motors up to 1200 kW at 690 V.

## Description

The soft starter NOVADEM S3 (NS3) is designed to control all aspects of starting, stopping and protection of 3 phase squirrel cage motors up to 1200 kW at 690 V. These high performance digital starters offer a user interface that supports a quick programming method by using pre-configured application macros. The NS3 also features as standard a RS232 serial link to communicate with a PC or a network. The NS3 starters allow a progressive starting, protection and stopping (freewheel, regulated or quick) of any three-phase asynchronous motors over a large range of power. The NS3 user interface is made of:

- A user-friendly display and keyboard interface for quick programming of every application by selecting the appropriate macro-programming
- A RS 232 serial link to connect it to a PC or a network

The powerful software enables the starter to be programmed and maintained without the constant need for an operating manual.

## Macro programming

The use of macros greatly simplify the programming of the starter: it only requires to know the nominal current of the motor and the nature of the application. The macro program corresponding to your machine not only selects the relevant parameter settings for you, it also configures the programmable I/O terminals. Numerous application macros are available, such as: centrifugal pumps, vacuum pumps, fans, compressors, grinders, conveyors... However, if the application macro is not available, the NS3 allows for easy programming of all the functions and parameters by means of the 40 character user interface.

# Specifications

## Models 230 V

| Reference   | Max motor power in kW           |                         | Amps                            |                              | Size                          | Weight |
|---|---------------------------------|-------------------------|---------------------------------|------------------------------|-------------------------------|--------|
|   | Starting for low / medium loads | Starting for high loads | Starting for low / medium loads | Starting for high loads      |                               |        |
| NS3-21-25<br>NS3-21-55<br>NS3-21-90               | 5.5<br>11<br>15                 | 4<br>5.5<br>7.5         | 23 A<br>37 A<br>44 A            | 16 A<br>23 A<br>30 A         | Size 200 x 370 x 182 mm       | 8.5 kg |
| NS3-2-90<br>NS3-22-91<br>NS3-22-132<br>NS3-22-160 | 18,5<br>22<br>25<br>30          | 11<br>15<br>18,5<br>22  | 59 A<br>72 A<br>87 A<br>106 A   | 37 A<br>44 A<br>59 A<br>87 A | Size 2<br>200 x 370 x 255 mm  | 10 kg  |
| NS3-23-250<br>NS3-23-251<br>NS3-23-300            | 37<br>45<br>55                  | 27<br>30<br>45          | 144 A<br>173 A<br>210 A         | 106 A<br>121 A<br>144 A      | Size 3<br>200 x 470 x 265 mm  | 16 kg  |
| NS3-24-300<br>NS3-24-500<br>NS3-24-600            | 75<br>90<br>132                 | 55<br>63<br>90          | 251 A<br>302 A<br>376 A         | 173 A<br>210 A<br>302 A      | Size 4<br>454 x 685 x 285 mm  | 44 kg  |
| NS3-25-760<br>NS3-25-1200<br>NS3-25-1500          | 160<br>200<br>220               | 110<br>150<br>160       | 468 A<br>615 A<br>668 A         | 376 A<br>468 A<br>514 A      | Size 5<br>454 x 685 x 285 mm  | 52 kg  |
| NS3-27-1200<br>NS3-27-1800<br>NS3-27-2300         | 250<br>315<br>400               | 200<br>250<br>280       | 741 A<br>915 A<br>1158 A        | 615 A<br>741 A<br>914 A      | Size 7<br>530 x 1340 x 420 mm | 165 kg |

## Models 400 V

| Reference  | Max motor power in kW           |                         | Amps                            |                              | Size                         | Weight |
|--|---------------------------------|-------------------------|---------------------------------|------------------------------|------------------------------|--------|
|  | Starting for low / medium loads | Starting for high loads | Starting for low / medium loads | Starting for high loads      |                              |        |
| NS3-41-25<br>NS3-41-55<br>NS3-41-90                | 11<br>18.5<br>22                | 7,5<br>11<br>15         | 23 A<br>37 A<br>44 A            | 16 A<br>23 A<br>30 A         | Size 1<br>200 x 370 x 182 mm | 8.5 kg |
| NS3-42-90<br>NS3-42-91<br>NS3-42-132<br>NS3-42-160 | 30<br>37<br>45<br>55            | 18,5<br>22<br>30<br>45  | 59 A<br>72 A<br>87 A<br>106 A   | 37 A<br>44 A<br>59 A<br>87 A | Size 2<br>200 x 370 x 255 mm | 10 kg  |
| NS3-43-250<br>NS3-43-251                           | 75<br>90                        | 55<br>63                | 144 A<br>173 A                  | 106 A<br>121 A               | Size 3<br>200 x 470 x        | 16 kg  |

|            |     |     |                |                |                                  |        |
|------------|-----|-----|----------------|----------------|----------------------------------|--------|
| NS3-43-300 | 110 | 75  | 210 A          | 144 A          | 265 mm                           |        |
| NS3-44-300 | 132 | 90  | 251 A          | 173 A          | Size 4<br>454 x 685 x<br>285 mm  | 44 kg  |
| NS3-44-500 | 160 | 110 | 302 A          | 210 A          |                                  |        |
| NS3-44-600 | 200 | 160 | 376 A          | 302 A          |                                  |        |
| NS3-45-760 | 250 | 200 | 468 A          | 376 A          | Size 5<br>454 x 685 x<br>285 mm  | 49 kg  |
| NS3-45-120 | 335 | 250 | 615 A<br>668 A | 468 A<br>514 A |                                  |        |
| NS3-45-150 | 400 | 280 | 668 A          | 514 A          | Size 5<br>454 x 685 x<br>285 mm  | 52 kg  |
| NS3-47-120 | 450 | 335 | 741 A          | 615 A          | Size 7<br>530 x 1340 x<br>420 mm | 165 kg |
| NS3-47-180 | 560 | 400 | 915 A          | 741 A          |                                  |        |
| NS3-47-230 | 670 | 500 | 1158 A         | 914 A          |                                  |        |

## Models 500 V

| Reference   | Max motor power in kW           |                         | Amps                            |                         | Size                             | Weight |
|-------------|---------------------------------|-------------------------|---------------------------------|-------------------------|----------------------------------|--------|
|             | Starting for low / medium loads | Starting for high loads | Starting for low / medium loads | Starting for high loads |                                  |        |
| NS3-51-25   | 11                              | 7.5                     | 23 A                            | 16 A                    | Size 1<br>200 x 370 x<br>182 mm  | 8.5 kg |
| NS3-51-55   | 22                              | 15                      | 37 A                            | 23 A                    |                                  |        |
| NS3-51-90   | 30                              | 18.5                    | 44 A                            | 30 A                    |                                  |        |
| NS3-52-90   | 37                              | 22                      | 59 A                            | 37 A                    | Size 2<br>200 x 370 x<br>255 mm  | 10 kg  |
| NS3-52-91   | 45                              | 30                      | 72 A                            | 44 A                    |                                  |        |
| NS3-52-132  | 55                              | 37                      | 87 A                            | 59 A                    |                                  |        |
| NS3-52-160  | 75                              | 55                      | 106 A                           | 87 A                    |                                  |        |
| NS3-53-250  | 90                              | 63                      | 144 A                           | 106 A                   | Size 3<br>200 x 470 x<br>265 mm  | 16 kg  |
| NS3-53-251  | 110                             | 75                      | 173 A                           | 121 A                   |                                  |        |
| NS3-53-300  | 132                             | 90                      | 210 A                           | 144 A                   |                                  |        |
| NS3-54-300  | 160                             | 110                     | 251 A                           | 173 A                   | Size 4<br>454 x 685 x<br>285 mm  | 44 kg  |
| NS3-54-500  | 200                             | 132                     | 302 A                           | 210 A                   |                                  |        |
| NS3-54-600  | 250                             | 200                     | 376 A                           | 302 A                   |                                  |        |
| NS3-55-760  | 315                             | 250                     | 468 A                           | 376 A                   | Size 5<br>454 x 685 x<br>285 mm  | 49 kg  |
| NS3-55-1200 | 400                             | 315                     | 6215 A                          | 468 A                   | Size 6<br>640 x 715 x<br>390 mm  | 85 kg  |
| NS3-55-1500 | 450                             | 355                     | 668 A                           | 514 A                   |                                  |        |
| NS3-57-1200 | 500                             | 400                     | 741 A                           | 615 A                   | Size 7<br>530 x 1340 x<br>420 mm | 165 kg |
| NS3-57-1800 | 630                             | 500                     | 915 A                           | 741 A                   |                                  |        |
| NS3-57-2300 | 900                             | 630                     | 1158 A                          | 914 A                   |                                  |        |

## Further features

|                   |  |
|-------------------|--|
| Starting          | Voltage ramp or constant current, with or without a torque boost. Starting current adjustable between 1 and 5 times the full load current of the motor. Starting time adjustable between 1 and 220 seconds.  |
| Stopping          | Freewheel stop, decelerating, controlled stop for pumps, brake stop or emergency stop. Stopping time adjustable between 1 and 220 seconds.   |
| Further functions | Energy saving, restart on the fly, automatic restart function, motor drying function, contra-rotation starting, two-speed motors and cascade starting (4 different motors), forced start, auto-test, locked rotor detection, delta-coupled starting, variable speed function (special motors)..... |

## General specifications

|                     |  |
|---------------------|--|
| Size                | See above  |
| Weight              | See above  |
| Display             | Large 40 character alpha-numerical display<br>8 button keyboard  |
| Power supply        | 230 V (-20%/+15%), 50/60 Hz<br>400 V (-20%/+15%), 50/60 Hz<br>500 V (10%/+15%), 50/60 Hz<br>690 V (10%/+15%), 50/60 Hz |
| Control supply      | 230 V (+10%/-15%), 50/60 Hz<br>115 V (+10%/-15%), 50/60 Hz or 48 V-  |
| Communication ports | RS 232   |

## Environmental specifications

|                           |   |
|---------------------------|---|
| Operating reference range | -10°C to +40°C (RH: < 90% w/o condensing) |
| Limit operating range     | -10°C to +55°C (RH: < 90% w/o condensing) |

## Models and accessories

### Instrument:

NS3                      Electronic starters for low and medium power cage motors

### Ordering code structure: NS3 - XX - XXX

*Please select the required features among the tables below to define the right device reference.*

#### Models 230 V

| Reference   | Max motor power in kW           |                         | Amps                            |                              | Size                          | Weight |
|---|---------------------------------|-------------------------|---------------------------------|------------------------------|-------------------------------|--------|
|   | Starting for low / medium loads | Starting for high loads | Starting for low / medium loads | Starting for high loads      |                               |        |
| NS3-21-25<br>NS3-21-55<br>NS3-21-90               | 5.5<br>11<br>15                 | 4<br>5.5<br>7.5         | 23 A<br>37 A<br>44 A            | 16 A<br>23 A<br>30 A         | Size 200 x 370 x 182 mm       | 8.5 kg |
| NS3-2-90<br>NS3-22-91<br>NS3-22-132<br>NS3-22-160 | 18,5<br>22<br>25<br>30          | 11<br>15<br>18,5<br>22  | 59 A<br>72 A<br>87 A<br>106 A   | 37 A<br>44 A<br>59 A<br>87 A | Size 2<br>200 x 370 x 255 mm  | 10 kg  |
| NS3-23-250<br>NS3-23-251<br>NS3-23-300            | 37<br>45<br>55                  | 27<br>30<br>45          | 144 A<br>173 A<br>210 A         | 106 A<br>121 A<br>144 A      | Size 3<br>200 x 470 x 265 mm  | 16 kg  |
| NS3-24-300<br>NS3-24-500<br>NS3-24-600            | 75<br>90<br>132                 | 55<br>63<br>90          | 251 A<br>302 A<br>376 A         | 173 A<br>210 A<br>302 A      | Size 4<br>454 x 685 x 285 mm  | 44 kg  |
| NS3-25-760<br>NS3-25-1200<br>NS3-25-1500          | 160<br>200<br>220               | 110<br>150<br>160       | 468 A<br>615 A<br>668 A         | 376 A<br>468 A<br>514 A      | Size 5<br>454 x 685 x 285 mm  | 52 kg  |
| NS3-27-1200<br>NS3-27-1800<br>NS3-27-2300         | 250<br>315<br>400               | 200<br>250<br>280       | 741 A<br>915 A<br>1158 A        | 615 A<br>741 A<br>914 A      | Size 7<br>530 x 1340 x 420 mm | 165 kg |

#### Models 400 V

| Reference                           | Max motor power in kW           |                         | Amps                            |                         | Size                         | Weight |
|-------------------------------------|---------------------------------|-------------------------|---------------------------------|-------------------------|------------------------------|--------|
|                                     | Starting for low / medium loads | Starting for high loads | Starting for low / medium loads | Starting for high loads |                              |        |
| NS3-41-25<br>NS3-41-55<br>NS3-41-90 | 11<br>18.5<br>22                | 7,5<br>11<br>15         | 23 A<br>37 A<br>44 A            | 16 A<br>23 A<br>30 A    | Size 1<br>200 x 370 x 182 mm | 8.5 kg |

|            |     |      |                |                |                                  |        |
|------------|-----|------|----------------|----------------|----------------------------------|--------|
| NS3-42-90  | 30  | 18,5 | 59 A           | 37 A           | Size 2<br>200 x 370 x<br>255 mm  | 10 kg  |
| NS3-42-91  | 37  | 22   | 72 A           | 44 A           |                                  |        |
| NS3-42-132 | 45  | 30   | 87 A           | 59 A           |                                  |        |
| NS3-42-160 | 55  | 45   | 106 A          | 87 A           |                                  |        |
| NS3-43-250 | 75  | 55   | 144 A          | 106 A          | Size 3<br>200 x 470 x<br>265 mm  | 16 kg  |
| NS3-43-251 | 90  | 63   | 173 A          | 121 A          |                                  |        |
| NS3-43-300 | 110 | 75   | 210 A          | 144 A          |                                  |        |
| NS3-44-300 | 132 | 90   | 251 A          | 173 A          | Size 4<br>454 x 685 x<br>285 mm  | 44 kg  |
| NS3-44-500 | 160 | 110  | 302 A          | 210 A          |                                  |        |
| NS3-44-600 | 200 | 160  | 376 A          | 302 A          |                                  |        |
| NS3-45-760 | 250 | 200  | 468 A          | 376 A          | Size 5<br>454 x 685 x<br>285 mm  | 49 kg  |
| NS3-45-120 | 335 | 250  | 615 A<br>668 A | 468 A<br>514 A |                                  |        |
| NS3-45-150 | 400 | 280  | 668 A          | 514 A          | Size 5<br>454 x 685 x<br>285 mm  | 52 kg  |
| NS3-47-120 | 450 | 335  | 741 A          | 615 A          | Size 7<br>530 x 1340 x<br>420 mm | 165 kg |
| NS3-47-180 | 560 | 400  | 915 A          | 741 A          |                                  |        |
| NS3-47-230 | 670 | 500  | 1158 A         | 914 A          |                                  |        |

## Models 500 V

| Reference   | Max motor power in kW           |                         | Amps                            |                         | Size                            | Weight |
|-------------|---------------------------------|-------------------------|---------------------------------|-------------------------|---------------------------------|--------|
|             | Starting for low / medium loads | Starting for high loads | Starting for low / medium loads | Starting for high loads |                                 |        |
| NS3-51-25   | 11                              | 7.5                     | 23 A                            | 16 A                    | Size 1<br>200 x 370 x<br>182 mm | 8.5 kg |
| NS3-51-55   | 22                              | 15                      | 37 A                            | 23 A                    |                                 |        |
| NS3-51-90   | 30                              | 18.5                    | 44 A                            | 30 A                    |                                 |        |
| NS3-52-90   | 37                              | 22                      | 59 A                            | 37 A                    | Size 2<br>200 x 370 x<br>255 mm | 10 kg  |
| NS3-52-91   | 45                              | 30                      | 72 A                            | 44 A                    |                                 |        |
| NS3-52-132  | 55                              | 37                      | 87 A                            | 59 A                    |                                 |        |
| NS3-52-160  | 75                              | 55                      | 106 A                           | 87 A                    |                                 |        |
| NS3-53-250  | 90                              | 63                      | 144 A                           | 106 A                   | Size 3<br>200 x 470 x<br>265 mm | 16 kg  |
| NS3-53-251  | 110                             | 75                      | 173 A                           | 121 A                   |                                 |        |
| NS3-53-300  | 132                             | 90                      | 210 A                           | 144 A                   |                                 |        |
| NS3-54-300  | 160                             | 110                     | 251 A                           | 173 A                   | Size 4<br>454 x 685 x<br>285 mm | 44 kg  |
| NS3-54-500  | 200                             | 132                     | 302 A                           | 210 A                   |                                 |        |
| NS3-54-600  | 250                             | 200                     | 376 A                           | 302 A                   |                                 |        |
| NS3-55-760  | 315                             | 250                     | 468 A                           | 376 A                   | Size 5<br>454 x 685 x<br>285 mm | 49 kg  |
| NS3-55-1200 | 400                             | 315                     | 6215 A                          | 468 A                   | Size 6<br>640 x 715 x<br>390 mm | 85 kg  |
| NS3-55-1500 | 450                             | 355                     | 668 A                           | 514 A                   |                                 |        |

|             |     |     |        |       |                                  |        |
|-------------|-----|-----|--------|-------|----------------------------------|--------|
| NS3-57-1200 | 500 | 400 | 741 A  | 615 A | Size 7<br>530 x 1340 x<br>420 mm | 165 kg |
| NS3-57-1800 | 630 | 500 | 915 A  | 741 A |                                  |        |
| NS3-57-2300 | 900 | 630 | 1158 A | 914 A |                                  |        |

## Accessories:

|             |  |
|-------------|--|
| MDB-NS      | MODBUS interface                                       |
| OPT-MUL     | Multi-option card                                      |
| OPT-LGD     | Logidem software (under Windows)                       |
| OPT-DEP3    | Remote display   |
| OPT-CAD3    | Remote display and keyboard                            |
| CA820-423TC | Control board with keyboard 400 V, power supply: 230 V |
| CA820-623TC | Control board with keyboard 690 V, power supply: 230 V |
| DE60837C    | IP20 sealing for models of size 1 to 3                 |